Report on the Petrale sole and Splitnose rockfish Stock Assessment Review (STAR) Panel May 4-8, 2009 Newport, OR

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Executive Summary

The assessment documents for the two reviewed species were made available sufficient time before the meeting to allow for an in-depth review. The documents for the two species were well prepared and contained the required information.

The assessments for both species do represent best available science and the assessment for petrale sole provides a reliable basis for setting OFLs and ABCs as mandated by the Magnuson-Stevens Act. The assessment for splitnose rockfish is more uncertain and MSY estimates should be considered highly uncertain until more information substantiates that such high catches are indeed sustainable.

The two assessments use Stock Synthesis as their main analytical tool as is the case for many USA West Coast stock assessments. Stock Synthesis is a highly flexible assessment tool in which it is possible to use several sources of information (growth information, catch, length and age frequencies, indices of stock sizes, etc.) to evaluate stock status. Stock Synthesis is highly structured with many options and built-in assumptions; it can be configured to mimic several other types of assessment approaches. Because of its structure and underlying assumptions, Stock Synthesis can provide stock estimates and fisheries management benchmarks even when very little data are available. It is sometimes difficult to ascertain the most important influence on the assessment results: the data or the assumptions in the assessment model. Using assessment software other than Stock Synthesis, including simpler statistical catch at age models, would be helpful to validate Stock Synthesis results and to determine the relative influence of data versus assumptions.

In other stock assessment and peer review systems, considerable time is spent examining input data prior to modeling. Analysts who use Stock Synthesis seem to spend less time on that stage, all available data is included in the assessment software and the analysts look at what comes out. Input data should be more carefully examined prior to being included in the Stock Synthesis framework.

Background

The STock Assessment Review (STAR) panel is part of the Pacific Fishery Management Council's (PFMC) process to provide peer review as referenced in the 2006 Reauthorization of the Magnuson-Stevens Fishery Conservation and Management Act, which states that "the Secretary and each Regional Fishery Management Council may establish a peer review process for that Regional Fishery Management Council for scientific information used to advise the Regional Fishery Management Council about the conservation and management of the fishery (see Magnuson-Stevens Act section 302(g)(1)(E)). If a peer review process is established, it should investigate the technical merits of stock assessments and other scientific information used by the Council's Scientific and Statistical Committee (SSC). The peer review process is not a substitute for the SSC and should work in conjunction with the SSC." The Pacific Fishery Management Council's Terms of Reference for the West Coast Groundfish Stock Assessments and STAR Process

for 2009-2010 require that reviewers be appointed from the Center for Independent Experts (CIE). Two reviewers from the Center for Independent Experts (CIE) took part in the 2009 STAR panel on Petrale sole and Splitnose rockfish.

Petrale sole was last assessed in 2005, with separate models for northern and southern areas. The 2009 assessment presented an integrated coast-wide assessment for petrale sole, the second most valuable flatfish species on the west coast.

The stock assessment for splitnose rockfish is the first assessment for this species, which is an important component of the slope rockfish fishery and may serve as an indicator species for unassessed slope rockfish species.

These two benchmark stock assessments are expected to provide the basis for the management of the groundfish fisheries off the West Coast of the U.S. including providing scientific basis for setting OFLs and ABCs as mandated by the Magnuson-Stevens Act. The technical review took place during May 4-8, 2009 in a formal, public meeting of fishery stock assessment experts.

Review Activities

Prior to the 2009 STAR panel meeting, I downloaded and reviewed the main assessment papers. I attended the STAR Panel and was rapporteur for Petrale sole. I took active part on the discussions for the two species being reviewed.

Summary of Findings for each ToR

Petrale sole

1. Determine if the petrale sole stock assessment document is sufficiently complete according to the Pacific Fishery Management Council's Terms of Reference for West Coast Groundfish Stock Assessment and STAR Panels.

   The petrale sole assessment document was complete, well researched, well documented and well presented. In addition to retrospective analyses, the assessment document should include a comparison of assessment results with those of the previous assessment.

2. Evaluate, data collection operations and survey design and make recommendations for improvement.

   The data collection operations were not discussed in detail, but did seem to be appropriate and follow standard procedures. The reconstruction of landings estimates for California and Washington differ from those used in the previous (2005) stock assessment, but there was insufficient time to go in the details of the differences. It was

assumed that the reconstructed California landings were more appropriate than those used in the previous assessment.

The addition of the NWFSC survey since 2003 brings useful information to the assessment. There are some indications, however, that petrale sole may be abundant in waters shallower than those surveyed. It would therefore seem useful to extend survey coverage to shallower waters.

3. Comment on quality of data used in the assessment.

Data from the early 1980s to the present are considered to be reliable. As indicated above the NWFSC survey since 2003 provides a useful index of stock size. The quality of the data prior to the late 1970s – early 1980s is expected to become progressively poorer. Sensitivity of results to using only recent reliable data should be investigated.

4. Evaluate and comment on analytic methodologies

The petrale sole assessment uses Stock Synthesis as its main analytical tool. Stock Synthesis is a standard assessment tool for many USA West Coast stock assessments. It is a highly flexible assessment tool in which it is possible to use several sources of information (growth information, catch, length and age frequencies, indices of stock sizes, etc.) to evaluate stock status. Stock Synthesis is highly structured with many options and built-in assumptions; it can be configured to mimic several other types of assessment approaches. Because of its structure and underlying assumptions, Stock Synthesis can provide stock estimates and fisheries management benchmarks even when very little data are available. It is sometimes difficult to ascertain the most important influence on the assessment results: the data or the assumptions in the assessment model.

5. Evaluate model assumptions, estimates, and major sources of uncertainty. Specifically, recommend improvements including alternative model configurations or formulations as appropriate during the panel meeting and comment on the primary sources of uncertainty in the assessment model.

Recommendations for improvements made during the meeting are documented in the panel report in the additional runs requested and in the research recommendations. Using assessment software other than Stock Synthesis, including simpler statistical catch at age models, would be helpful to validate Stock Synthesis results and to determine the relative influence of data versus assumptions.

6. Insert an explicit statement as to whether this stock assessment represents the best available science.

The petrale sole does represent best available science and provides a reliable basis for setting OFLs and ABCs as mandated by the Magnuson-Stevens Act.

The current assessment and the 2005 assessment (when the results from the two separate petrale sole assessments were added together) provide similar biomass and depletion trajectories, with overlapping confidence intervals and similar estimates during the 1980-2000 periods. The 2005 assessment suggested that biomass was generally increasing through 2005; the current assessment indicates that the stock biomass peaked in 2005 and has been declining since. The NWFSC survey suggests similar trends in biomass with a peak in 2005 and declining trend since. While the 2005 assessment indicated that the stock was not overfished in 2005 and that overfishing was not occurring it did show that the stock had been below the minimum stock size threshold (MSST) for much of the previous three decades and had only increased above the MSST during the previous 1-3 years.

Assuming either a Beverton & Holt or a Ricker stock-recruitment relationship has little influence on biomass estimates from the early 1950s to 2009, but the estimates of B_0 are markedly different: ≈ 25 000mt when a B&H relationship is assumed and ≈ 15 000mt when a Ricker relationship is assumed. The choice of a stock-recruitment relationship, therefore, is important to the evaluation of current stock size versus B_0 . If MSY reference points are used instead, the difference is smaller.

There are theoretical reasons to expect a Ricker stock-recruitment relationship (petrale sole is cannibalistic and being an ambush predator, larger adults probably need a larger territory which my limit where recruits could settle), but because there was insufficient evidence to choose between Ricker and Beverton and Holt, the panel defaulted to the more commonly used B&H relationship. Choosing a Ricker relationship, however, would result in a lower B_0 estimate and thus higher $B_{CURRENT}$ to B_0 ratio.

The q estimated for the NWFSC shelf/slope is approximately 6 times higher than that for the AFSC triennial surveys and implies that the survey biomass estimate is about 3 times larger than the biomass in the assessment. Traditionally, trawl survey estimates have been considered “minimum trawlable biomass estimates” and the results suggesting that the survey biomass estimates are in fact larger than the assessed biomass seem difficult to believe. The high “q” is likely due to the aerial expansion to convert the average kg/tow per stratum to the entire stratum area, with the expansion factor including areas where petrale sole are not present.

7. Recommendations for any further improvements

Extend the NWFSC survey in shallower waters to better cover the distribution of petrale sole. Use other models, including simpler statistical catch at age models, to determine the relative influence of data versus assumptions in Stock Synthesis.

8. Brief description on panel review proceedings highlighting pertinent discussions, issues, effectiveness, and recommendations

The meeting proceeded smoothly along the agreed schedule. The STAT diligently conducted additional analyses and presented them. There was a real good spirit of cooperation between the STAT and the STAR panel to improve the quality and usefulness of the assessment. The was no internet access in the meeting room; this should be corrected for the next STAR panel review.

Splitnose rockfish

1. Determine if the Splitnose rockfish stock assessment document is sufficiently complete according to the Pacific Fishery Management Council's Terms of Reference for West Coast Groundfish Stock Assessment and STAR Panels.

   The splitnose rockfish assessment document was complete. Results presented to the STAR Panel on May 5, 2009 include those from the assessment document dated April 19, 2009, and results from an improved model formulation that was slightly different than that in the assessment document date April 19, 2009. The document included retrospective analyses that showed estimates up to the last year of the assessment. It would be easier to evaluate retrospective patterns if the graphs only showed results up to the last year used in the retrospective calculation. The next assessment, in addition to retrospective analyses as discussed above, should include a comparison of assessment results with those of the current assessment. It was not possible to do this in the current assessment because it was the first complete assessment for splitnose rockfish.

2. Evaluate, data collection operations and survey design and make recommendations for improvement

   The data collection operations were not discussed in detail, but did seem to be appropriate and following standard procedures. This was the first splitnose rockfish assessment and it used data compiled in previous reviews and analyses. The reliability of landing estimates from foreign fleets prior to the extension of the EEZ is unknown. It is generally based on estimated proportions in the rockfish species complex and as such yearly estimates may be more or less reliable. In particular, the three years of very high landings during 1966 to 1968 may or may not be true.

3. Comment on quality of data used in the assessment.

   Data from the early 1980s to the present are considered to be reliable. As indicated above the reliability of the species composition in foreign catches prior to the extension of the EEZ is unknown and particularly so for yearly values. The quality of the data prior to the late 1970s – early 1980s is expected to become progressively poorer the further back one goes.

4. Evaluate and comment on analytic methodologies

   The Splitnose rockfish assessment uses Stock Synthesis as its main analytical tool. Stock Synthesis is a standard assessment tool for many USA West Coast stock

assessments. It is a highly flexible assessment tool in which it is possible to use several sources of information (growth information, catch, length and age frequencies, indices of stock sizes, etc.) to evaluate stock status. Stock Synthesis is highly structured with many options and it can be configured to mimic several other types of assessment approaches. Because of its structure and underlying assumptions, Stock Synthesis can provide stock estimates and fisheries management quantities even when very little data are available. It is sometimes difficult to ascertain the most important influence on the assessment results: the data or the assumptions in the assessment model.

5. Evaluate model assumptions, estimates, and major sources of uncertainty. Specifically, recommend improvements including alternative model configurations or formulations as appropriate during the panel meeting and comment on the primary sources of uncertainty in the assessment model.

   Recommendations for improvements made during the meeting are documented in the panel report in the additional runs requested and in the research recommendations. Using assessment software other than Stock Synthesis, including simpler statistical catch at age models, would be helpful to validate Stock Synthesis results and to determine the relative influence of data versus assumptions.

6. Insert an explicit statement as to whether this stock assessment represents the best available science.

   An initial review of information was completed in the early 1990's (Rogers 1994) but the current analysis is in fact the first stock assessment for Splitnose rockfish. Considerable progress has been achieved in assembling and analyzing the data and results indicate that current management measures lead to catches that are sustainable. The assessment does represent best available science but actual stock trends over time, present stock status, and management benchmarks however, remain uncertain.

   The initial assessment document dated April 19, 2009, indicated (figure 87, page 144) that total biomass was in the order of 100 000mt in 1900, declined to 60 000mt in 1940, increased subsequently to above 70 000mt in 1950 before declining slightly until a sharp drop in the 1960s corresponding to large catches in 1966 , 1967 , and 1968 . Biomass reached a minimum of about 30 000mt in the mid 1980s and increased very steeply since 2000 to close to 90 000mt in 2009, i.e. very close to B_0.

   The time-series of spawning output (million eggs) follows a similar, but lagged, pattern: from 12 000 in 1900, decreasing to 7 000 in the early 1940s, increasing to 8 000 in the mid 1950s, decreasing to 4 000 in the late 1990s and subsequently increasing sharply to 6 000 million eggs in 2009. Because of the lag between total biomass and spawning output, an increase in spawning output would be expected from those assessment results to close to spawning output at B_0, similar to the total biomass.

   The STAT continued to work on improving the assessment after they uploaded the April 19, 2009 version of the assessment document, including improved estimates from the

slope surveys, excluding 1977 and 1980 length data, as well as differences in handling the conditional age at length data, the q set up and the selectivity parameters. The results in the STAT presentation on May 5, 2009 included those from the April 19, 2009 assessment document and those from an improved model which were therefore slightly different. The spawning output trends and 2009 value seemed very similar. According to this improved assessment, the splitnose rockfish had never been below the minimum stock size threshold and had been below target from the early 1980s to 2005.

The STAT drew the panel's attention to the observation that landings above 1 000mt had been recorded in only five years during 1900 to 2008 and that very small landings, considerably lower than management benchmarks, during 1900 to 1940 had caused the stock to decline by nearly 40% in the original April 19, 2009 assessment as well as in the improved formulation. A "tuned" version with otherwise similar configuration produced a more plausible stock trajectory with a small decline from 1900 to 1940, corresponding to very low catches.

The final model assumed a Beverton-Holt stock recruitment relationship, recruitment deviations were estimated beginning in 1960, bias adjustment was started in 1980 and stopped in 2002 and the model was tuned on effective sample sizes. Tuning on sigma R alone was attempted but produced unrealistic results.

While the historical trends and recent stock estimates do seem to make sense, it is not impossible that other plausible combination of parameters would result in different values. The important result is that none of the configurations investigated suggested that the stock was being overfished or that overfishing was occurring. In that sense, the results are comforting. They should not be taken too far, however.

While the conclusion that splitnose rockfish is not overfished and that overfishing is not occurring seems robust to the various model configurations tested, it would be premature to take the management benchmarks (which indicate reference yield in the order of 1 200mt) at face value. The results of the assessment suggest that the current fisheries management measures result in catches that appear to be sustainable, but it would not be prudent to allow catches to increase markedly above the long term average until the next stock assessment, with more years of data, substantiate the yield reference points calculated in the current assessment. It would not be prudent to expand the fishery to achieve the newly estimated management reference points until more information is gathered that substantiate that such large catches are indeed sustainable.

7. Recommendations for any further improvements

Use other models, including simpler statistical catch at age models, do determine the relative influence of data versus assumptions in Stock Synthesis.

8. Brief description on panel review proceedings highlighting pertinent discussions, issues, effectiveness, and recommendations

The meeting proceeded smoothly along the agreed schedule. The STAT diligently conducted additional analyses and presented them. The STAT worked hard before and during the STAR panel review to identify convincing model formulations.

The lack of internet connection in the meeting room is an impediment to review.

Conclusions and Recommendations

In other stock assessment and peer review systems, considerable time is spent examining input data prior to modeling. Analysts who use Stock Synthesis seem to spend less time on that stage, all available data is included in the assessment software and the analysts look at what comes out. A careful examination of input data, for example, could have helped explain the high recruitment in splitnose rockfish in recent years.

It is sometimes difficult to ascertain the most important influence on the assessment results: the data or the assumptions in the assessment model. Using assessment software other than Stock Synthesis, including simpler statistical catch at age models, would be helpful to validate Stock Synthesis results and to determine the relative influence of data versus assumptions.

In addition to retrospective analyses, the assessment document should include a comparison of assessment results with those of the previous assessment.

There are some indications that petrale sole may be abundant in waters shallower than those surveyed. It would therefore seem useful to extend survey coverage to shallower waters.

Sensitivity of results to using only recent reliable data should be investigated.

Appendix 1: Bibliography of materials provided for review

Gertseva, V.V. and Cope, J.M. 2009. Status of the U.S. splitnose rockfish (Sebastes diploproa) resource in 2009. Working Paper prepared for the STAR Panel.

Haltuch, M.A. Hicks, A. 2009. DRAFT Status of the U.S. petrale sole resource in 2008. Working Paper prepared for the STAR Panel.

Lai, Han-Lin, Haltuch, M.A., Punt, A.E and Cope, J.M. 2005. Stock Assessment of Petrale Sole: 2004.

Methot, R.D. 2000. Technical description of the stock synthesis assessment program. U.S. Dept. Commer., NOAA Tech. Memo. NMFS-NWFSC-43, 46 p.

Methot, R.D. 2009. User Manual for Stock Synthesis Model Version 3.02C. Updated January 29, 2009. NOAA Fisheries Seattle, WA

Rogers, J.B. 1994. Preliminary Status of the Splitnose Rockfish Stock in 1994.

STAR Panel. 2005a. Petrale Sole – Southern Stock. STAR Panel Report April 2005.

STAR Panel. 2005b. Petrale Sole. STAR Panel Report September 2005.

Appendix 2: A copy of the CIE Statement of Work

Statement of Work for Jean-Jacques Maguire

Stock Assessment Review Panel for Petrale Sole and Splitnose Rockfish

Scope of Work and CIE Process: The National Marine Fisheries Service's (NMFS) Office of Science and Technology coordinates and manages a contract to provide external expertise through the Center for Independent Experts (CIE) to conduct impartial and independent peer reviews of NMFS scientific projects. This Statement of Work (SoW) described herein was established by the NMFS Contracting Officer's Technical Representative (COTR) and CIE based on the peer review requirements submitted by NMFS Project Contact. CIE reviewers are selected by the CIE Coordination Team and Steering Committee to conduct the peer review of NMFS science with project specific Terms of Reference (ToRs). Each CIE reviewer shall produce a CIE independent peer review report with specific format and content requirements (**Annex 1**). This SoW describes the work tasks and deliverables of the CIE reviewers for conducting an independent peer review of the following NMFS project.

Project Description: Petrale sole was last assessed in 2005, with separate models for northern and southern areas. This assessment will focus on developing an integrated coast-wide assessment for the second most valuable flatfish species on the west coast. This will be the first stock assessment for splitnose rockfish, which is an important species in the slope rockfish fishery and may serve as an indicator species for unassessed slope rockfish species. These two benchmark stock assessments will provide the basis for the management of the groundfish fisheries off the West Coast of the U.S. including providing scientific basis for setting OFLs and ABCs as mandated by the Magnuson-Stevens Act. The technical review will take place during a formal, public, multiple-day meeting of fishery stock assessment experts. Participation of external, independent reviewer is an essential part of the review process

The STAR panel is part of the Pacific Fishery Management Council's process to provide peer review as referenced in the 2006 Reauthorization of the Magnuson-Stevens Fishery Conservation and Management Act, which states that " the Secretary and each Regional Fishery Management Council may establish a peer review process for that Regional Fishery Management Council for scientific information used to advise the Regional Fishery Management Council about the conservation and management of the fishery (see Magnuson-Stevens Act section 302(g)(1)(E)). If a peer review process is established, it should investigate the technical merits of stock assessments and other scientific information used by the Council's Scientific and Statistical Committee (SSC). The peer review process is not a substitute for the SSC and should work in conjunction with the SSC."

The Pacific Fishery Management Council's Terms of Reference for the West Coast Groundfish Stock Assessments and STAR Process for 2009-2010 requires that some

reviewers be appointed from the Center for Independent Experts (CIE). The Council's terms of reference document is also included as background material.

The Terms of Reference (ToRs) for the CIE review are attached in **Annex 2**. The tentative agenda of the panel review meeting is attached in **Annex 3**.

Requirements for CIE Reviewers: Two CIE reviewers shall conduct an impartial and independent peer review in accordance with the SoW and ToRs herein, with one of the reviewers participating in all 2009 STAR panels (other than hake) to provide a level of consistency between the panels. Each CIE reviewer's duties shall not exceed a maximum of 14 days to complete all work tasks of the peer review described herein. CIE reviewers shall have the expertise, background, and experience to complete an independent peer review in accordance with the SoW and ToRs herein. CIE reviewer shall have expertise and work experience in fish population dynamics, with experience in the integrated analysis modeling approach, using age-and size-structured models, use of MCMC to develop confidence intervals, and use of Generalized Linear Models in stock assessment models.

Location of Peer Review: Each CIE reviewer shall conduct an independent peer review during the panel review meeting scheduled in Newport, Oregon during May 4-8, 2009.

Statement of Tasks: Each CIE reviewers shall complete the following tasks in accordance with the SoW and Schedule of Milestones and Deliverables herein.

Prior to the Peer Review: Upon completion of the CIE reviewer selection by the CIE Steering committee, the CIE shall provide the CIE reviewer information (name, affiliation, and contact details) to the COTR, who forwards this information to the NMFS Project Contact no later the date specified in the Schedule of Milestones and Deliverables. The CIE is responsible for providing the SoW and ToRs to the CIE reviewers. The NMFS Project Contact is responsible for providing the CIE reviewers with the background documents, reports, foreign national security clearance, and information concerning other pertinent meeting arrangements. The NMFS Project Contact is also responsible for providing the Chair a copy of the SoW in advance of the panel review meeting. Any changes to the SoW or ToRs must be made through the COTR prior to the commencement of the peer review.

Foreign National Security Clearance: When CIE reviewers participate during a panel review meeting at a government facility, the NMFS Project Contact is responsible for obtaining the Foreign National Security Clearance approval for CIE reviewers who are non-US citizens. For this reason, the CIE reviewers shall provide requested information (e.g., name, contact information, birth date, passport number, travel dates, and country of origin) to the NMFS Project Clearance for the purpose of their security clearance, and this information shall be submitted at least 30 days before the peer review in accordance with the NOAA Deemed Export Technology Control Program NAO 207-12 regulations (available at the Deemed Exports NAO website: http://deemedexports.noaa.gov/sponsor.html).

Pre-review Background Documents: Two weeks before the peer review, the NMFS Project Contact will send by electronic mail or make available at an FTP site the CIE reviewers all necessary background information and reports for the peer review. In the case where the documents need to be mailed, the NMFS Project Contact will consult with the CIE on where to send documents. The CIE reviewers shall read all documents in preparation for the peer review.

Documents to be provided to the CIE reviewers prior to the STAR Panel meeting include:

- The current draft stock assessment reports;
- The most recent previous Petrale sole stock assessment and STAR Panel report;
- The Pacific Fishery Management Council's Scientific and Statistical Committee's Terms of Reference for Stock Assessments and STAR Panel Reviews;
- Stock Synthesis (SS) Documentation
- Additional supporting documents as available.
- An electronic copy of the data, the parameters, and the model used for the assessments (if requested by reviewer).

This list of pre-review documents may be updated up to two weeks before the peer review. Any delays in submission of pre-review documents for the CIE peer review will result in delays with the CIE peer review process, including a SoW modification to the schedule of milestones and deliverables. Furthermore, the CIE reviewers are responsible only for the pre-review documents that are delivered to the reviewer in accordance to the SoW scheduled deadlines specified herein.

Panel Review Meeting: Each CIE reviewers shall conduct the independent peer review in accordance with the SoW and ToRs. **Modifications to the SoW and ToRs can not be made during the peer review, and any SoW or ToRs modifications prior to the peer review shall be approved by the COTR and CIE Lead Coordinator.** Each CIE reviewer shall actively participate in a professional and respectful manner as a member of the meeting review panel, and their peer review tasks shall be focused on the ToRs as specified in the contract SoW. The NMFS Project Contact is responsible for any facility arrangements (e.g., conference room for panel review meetings or teleconference arrangements). The CIE Lead Coordinator can contact the Project Contact to confirm any peer review arrangements, including the meeting facility arrangements.

In most circumstances a STAR Panel will include a chair appointed from the SSC's Groundfish Subcommittee and three other experienced stock assessment analysts. The STAR panel chair is responsible for: 1) developing an agenda for the STAR panel meeting, 2) ensuring that STAR panel members and STAT teams follow the Terms of Reference, 3) participating in the review of the assessment, 4) guiding the STAR panel and STAT team to mutually agreeable solutions, and 5) coordinating review of final assessment documents.

The CIE reviewer's role includes being an active panel participant and participants are strongly encouraged to voice all comments regarding the assessment data, model

configurations, and uncertainty during the STAR Panel so the assessment teams can address the comments during the Panel meeting and incorporate changes when appropriate. The assessments are finalized by the end of the Panel meeting and comments made after the fact will not be able to be included in the final assessment document. The CIE reviewer should also contribute to the final STAR Panel Review Report. Additional details regarding the STAR Panel reviewers' responsibilities are included in the Pacific Fishery Management Council's final Terms of Reference for Groundfish Stock Assessments and STAR Panel meetings.

Contract Deliverables - Independent CIE Peer Review Reports: Each CIE reviewer shall complete an independent peer review report in accordance with the SoW. Each CIE reviewer shall complete the independent peer review according to required format and content as described in Annex 1. Each CIE reviewer shall complete the independent peer review addressing each ToR as described in Annex 2.

Other Tasks – Contribution to Summary Report: Each CIE reviewer will assist the Chair of the panel review meeting with contributions to the Summary Report. CIE reviewers are not required to reach a consensus, and should instead provide a brief summary of their views on the summary of findings and conclusions reached by the review panel in accordance with the ToRs.

Specific Tasks for CIE Reviewers: The following chronological list of tasks shall be completed by each CIE reviewer in a timely manner as specified in the **Schedule of Milestones and Deliverables**.

1) Conduct necessary pre-review preparations, including the review of background material and reports provided by the NMFS Project Contact in advance of the peer review;
2) Participate during the panel review meeting in Newport, Oregon, from May 4-8, 2009, as called for in the SoW, and conduct an independent peer review in accordance with the ToRs (Annex 2);
3) No later than May 22, 2009, each CIE reviewer shall submit an independent peer review report addressed to the "Center for Independent Experts," and sent to Mr. Manoj Shivlani, CIE Lead Coordinator, via email to shivlanim@bellsouth.net, and CIE Regional Coordinator, via email to David Die at ddie@rsmas.miami.edu. Each CIE report shall be written using the format and content requirements specified in Annex 1, and address each ToR in Annex 2;
4) CIE reviewers shall address changes as required by the CIE review in accordance with the schedule of milestones and deliverables.

Schedule of Milestones and Deliverables: CIE shall complete the tasks and deliverables described in this SoW in accordance with the following schedule.

30 March 2009	CIE sends reviewer contact information to the COTR, who then sends this to the NMFS Project Contact
20 April 2009	NMFS Project Contact sends the CIE Reviewers the pre-review documents
4-8 May 2009	Each reviewer participates and conducts an independent peer review during the panel review meeting
22 May 2009	CIE reviewers submit draft CIE independent peer review reports to the CIE Lead Coordinator and CIE Regional Coordinator
5 June 2009	CIE submits CIE independent peer review reports to the COTR
12 June 2009	The COTR distributes the final CIE reports to the NMFS Project Contact and regional Center Director

Modifications to the Statement of Work: Requests to modify this SoW must be made through the Contracting Officer's Technical Representative (COTR) who submits the modification for approval to the Contracting Officer at least 15 working days prior to making any permanent substitutions. The Contracting Officer will notify the CIE within 10 working days after receipt of all required information of the decision on substitutions. The COTR can approve changes to the milestone dates, list of pre-review documents, and Terms of Reference (ToR) of the SoW as long as the role and ability of the CIE reviewers to complete the SoW deliverable in accordance with the ToRs and deliverable schedule are not adversely impacted. The SoW and ToRs cannot be changed once the peer review has begun.

Acceptance of Deliverables: Upon review and acceptance of the CIE independent peer review reports by the CIE Lead Coordinator, Regional Coordinator, and Steering Committee, these reports shall be sent to the COTR for final approval as contract deliverables based on compliance with the SoW. As specified in the Schedule of Milestones and Deliverables, the CIE shall send via e-mail the contract deliverables (the CIE independent peer review reports) to the COTR (William Michaels, via William.Michaels@noaa.gov).

Applicable Performance Standards: The contract is successfully completed when the COTR provides final approval of the contract deliverables. The acceptance of the contract deliverables shall be based on three performance standards: (1) each CIE report shall have the format and content in accordance with Annex 1, (2) each CIE report shall address each ToR as specified in Annex 2, (3) the CIE reports shall be delivered in a timely manner as specified in the schedule of milestones and deliverables.

Distribution of Approved Deliverables: Upon notification of acceptance by the COTR, the CIE Lead Coordinator shall send via e-mail the final CIE reports in *.PDF format to the COTR. The COTR will distribute the approved CIE reports to the NMFS Project Contact and regional Center Director.

Key Personnel:

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Annex 1: Format and Contents of CIE Independent Peer Review Report

1. The CIE independent report shall be prefaced with an Executive Summary providing a concise summary of the findings and recommendations.

2. The main body of the reviewer report shall consist of a Background, Description of the Individual Reviewer's Role in the Review Activities, Summary of Findings for each ToR, and Conclusions and Recommendations in accordance with the ToRs.

   a. Reviewers should describe in their own words the review activities completed during the panel review meeting, including providing a detailed summary of findings, conclusions, and recommendations.

   b. Reviewers should discuss their independent views on each ToR even if these were consistent with those of other panelists, and especially where there were divergent views.

   c. Reviewers should elaborate on any points raised in the Summary Report that they feel might require further clarification.

   d. Reviewers shall provide a critique of the NMFS review process, including suggestions for improvements of both process and products.

   e. The CIE independent report shall be a stand-alone document for others to understand the proceedings and findings of the meeting, regardless of whether or not they read the summary report. The CIE independent report shall be an independent peer review of each ToRs, and shall not simply repeat the contents of the summary report.

3. The reviewer report shall include as separate appendices as follows:

   Appendix 1: Bibliography of materials provided for review
   Appendix 2: A copy of the CIE Statement of Work
   Appendix 3: Panel Membership or other pertinent information from the panel review meeting.

Annex 2: Terms of Reference for the Peer Review

Stock Assessment Review Panel for Petrale Sole and Splitnose Rockfish

1. Become familiar with the draft Petrale sole and splitnose rockfish stock assessments and background materials. Along with other members of the Panel, determine if the stock assessment document is sufficiently complete according to the Pacific Fishery Management Council's Terms of Reference for West Coast Groundfish Stock Assessment and STAR Panels.
2. Evaluate, data collection operations and survey design and make recommendations for improvement
3. Comment on quality of data used in the assessment.
4. Evaluate and comment on analytic methodologies
5. Evaluate model assumptions, estimates, and major sources of uncertainty. Specifically, recommend improvements including alternative model configurations or formulations as appropriate during the panel meeting and comment on the primary sources of uncertainty in the assessment model.
6. Insert an explicit statement as to whether this stock assessment represents the best available science.
7. Recommendations for any further improvements
8. Brief description on panel review proceedings highlighting pertinent discussions, issues, effectiveness, and recommendations

Note – CIE reviewers typically address scientific subjects, hence ToRs usually do not involve CIE reviewers with regulatory and management issues unless this expertise is specifically requested in the SoW.

Annex 3: Tentative Agenda

PETRALE SOLE AND SPLITNOSE ROCKFISH
STOCK ASSESSMENT REVIEW (STAR) PANEL

May 4-8, 2009,
Northwest Fisheries Science Center
Hatfield Marine Science Center,
2032 SE Oregon State University Drive,
Newport, Oregon, 97365

Monday, May 4, 2009

8:30 a.m. Welcome and Introductions (Stacey Miller, NMFS).

8:45 a.m. Review the Draft Agenda and Discussion of Meeting Format
(Theresa Tsou, Panel Chair, SSC rep).
- Review Terms of Reference for Assessment and Review Panel
- Assignment of reporting duties
- Discuss and agree to format for the final assessment document

9:15 a.m. Stock Assessment Team Presentation of Petrale Sole (Melissa Haltuch and Allan Hicks)
- Overview of Data and Stock Synthesis Modeling

12:00 p.m. Lunch (On Your Own)

1:30 p.m. Q&A session with the Petrale sole STAT & Panel discussion

3:30 p.m. Coffee Break

3:45 p.m. Panel develops request for additional model runs / analyses for Petrale sole STAT

4:30 p.m. Panel provides written requests for additional model runs / analyses to Petrale sole STAT

5:30 p.m. Adjourn for day.

Tuesday, May 5, 2009

8:30 a.m. Stock Assessment Team Presentation of Splitnose Rockfish (Vladlena Gertseva and Jason Cope)
- Overview of Data and Stock Synthesis Modeling

12:00 p.m. Lunch (On Your Own)

1:30 p.m. Q&A session with the Splitnose Rockfish STAT & Panel discussion

3:00 p.m. Coffee Break

3:15 p.m. Panel develops written request for additional model runs / analyses for Splitnose rockfish STAT

4:00 p.m. Panel check in with Petrale sole STAT

5:30 p.m. Adjourn for day.

PETRALE SOLE AND SPLITNOSE ROCKFISH
STOCK ASSESSMENT REVIEW (STAR) PANEL

Wednesday, May 6, 2009

8:30 a.m. Petrale sole STAT Presentation of first set of model runs

- Q&A session with the Petrale sole STAT & Panel discussion
- Panel develops written request for second round of model runs / analyses for Petrale sole STAT

12:00 p.m. Lunch (On Your Own)

1:30 p.m. Splitnose rockfish STAT Presentation of first set of model runs for

- Q&A session with the Splitnose rockfish STAT & Panel discussion
- Panel develops written request for second round of model runs / analyses for Splitnose rockfish STAT

3:30 p.m. Coffee Break

3:45 p.m. Continue Panel discussion with Splitnose rockfish STAT

5:30 p.m. Adjourn for day.

Thursday, May 7, 2009

8:30 a.m. Petrale sole STAT Presentation of Second Set of Model Runs

- Q&A session with the Petrale sole STAT & Panel discussion
- Identification of preferred model and elements for the decision table.
- Panel develops third list of model runs for decision table and begins drafting STAR report.

12:00 p.m. Lunch (On Your Own)

1:30 p.m. Splitnose rockfish STAT Presentation of Second Set of Model Runs

- Q&A session with the Splitnose rockfish STAT & Panel discussion
- Identification of preferred model and elements for the decision table.
- Panel develops third list of model runs for decision table and begins drafting STAR report.

3:30 p.m. Coffee Break

3:45 p.m. Panel discussion or report drafting continues

5:30 p.m. Adjourn for day.

Friday, May 8, 2009

9:00 a.m. Consideration of remaining issues

- Review decision tables for Petrale sole and Splitnose rockfish

11:00 a.m. Panel agrees to process for completing final STAR report by Council Briefing Book deadline (05/27 for Council's June Briefing Book).

Panel Adjourns When All Business Is Completed.

Appendix 3: Panel Membership or other pertinent information from the panel review meeting.

STAR Panel members:
Dr. Theresa Tsou, Washington Department of Fish and Wildlife, SSC, STAR Chair
J.-J. Maguire, Center for Independent Experts
Dr. Robin Cook, Center for Independent Experts
Dr. Xi He, National Marine Fisheries Service Southwest Fisheries Science Center

STAR Panel advisors:
Mr. Dan Erickson, Oregon Department of Fish and Wildlife, Groundfish Management Team advisor
Mr. Brad Pettinger, Oregon Trawl Commission, Groundfish Advisory Subpanel advisor
Mr. John DeVore. Pacific Fishery Management Council advisor

Stock Assessment Team (STAT) members:

Petrale Sole STAT:
Dr. Melissa Haltuch, National Marine Fisheries Service Northwest Fisheries Science Center
Dr. Allan Hicks, National Marine Fisheries Service Northwest Fisheries Science Center

Splitnose Rockfish STAT:
Dr. Vladlena Gertseva, National Marine Fisheries Service Northwest Fisheries Science Center
Dr. Jason Cope, National Marine Fisheries Service Northwest Fisheries Science Center

Others present:
Ms. Stacey Miller, National Marine Fisheries Service Northwest Fisheries Science Center
Dr. Jim Hastie, National Marine Fisheries Service Northwest Fisheries Science Center
Dr. Patty Burke, National Marine Fisheries Service Northwest
Mr. Ralph Brown, Brookings, Oregon trawl fisherman- F/V Little Joe
Mr. Scott Malvitch, Oregon Department of Fish and Wildlife
Mr. Jeff Chestnut, Newport, Oregon trawl fisherman- F/V Prospector
Mr. Ben Chestnut, Newport, Oregon trawl fisherman- F/V Golden Dolphin
Mr. Leroy Evans, Newport, Oregon fishermen- F/V Corsain
Mr. Gary Ripka, Newport, Oregon trawl fisherman- F/V Western Breeze
Ms. Susan Chambers, West Coast Seafood Processors Association